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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,397	11/19/2003	Adolf Stender	03100186AA	5309

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EXAMINER

MAYO, TARA L

ART UNIT	PAPER NUMBER
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3671

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/715,397

Applicant(s)

STENDER ET AL.

Examiner

Tara L. Mayo

Art Unit

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 18-27 is/are allowed.  
6) ☒ Claim(s) 1-7, 9-17 and 28-30 is/are rejected.  
7) ☒ Claim(s) 8 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/12/05.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. The prior objection to the drawings is withdrawn in view of the remarks filed 12 January 2005.

### ***Specification***

3. The prior objection to the Specification has been overcome by the response filed 12 January 2005 including an amended Abstract.

### ***Claim Objections***

4. Claims 29 and 30 are objected to because of the following informalities: inconsistent terminology. In claim 29 on line 1, immediately following "the" and prior to "polyol" insert --isocyanate functionality of the--. Repeat the correction for claim 30 on line 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3671

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 through 3, 6, 7, 11, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsler et al. (U.S. Patent No. 5,845,352 A) in view of Christensen et al. (U.S. Patent No. 6,745,499 B2) and Crosbie (U.S. Patent No. 6,336,681 B1).

Matsler et al. '352, as seen in Figures 1 through 3, show:

with regard to claim 1,

a shaped body (10) comprising:

a supporting layer (12) shaped with integral supports (41) on its upper side, which are spaced apart from each other via expansion channels;

a polyurethane foam layer (11; col. 3, lines 24 through 28) resting on the integral supports of the supporting layer (when in use; col. 4, lines 40 through 43); and

Art Unit: 3671

an upper covering (13) on an upper side of the polyurethane foam layer;

with regard to claim 2,

wherein the integral supports are at a narrower distance from one another in the region of the pressure peaks that occur under load;

with regard to claim 3,

wherein the integral supports are of columnar shape;

with regard to claim 6,

wherein the polyurethane foam layer partially laterally encloses the lower supporting layer;

with regard to claim 7,

wherein the lower supporting layer is bonded to the polyurethane foam layer (via element 55); and

with regard to claim 28,

wherein said shaped body forms at least part of a seat cushion.

Matsler et al. '352 disclose all of the features of the claimed invention with the exception(s) of:

with regard to claim 1,

the lower supporting layer comprising polyurethane polymer 5gel;

with regard to claim 11,

the chemical structure of the polyurethane polymer gel consisting of long polymer threads and only a few linkages without added plasticizers being used;

Art Unit: 3671

with regard to claim 12,

wherein the chemical structure of the polyurethane polymer gel is undercrosslinked polyurethane based on polyols and polyisocyanates or polyethers and polyisocyanates.

Christensen et al. '499, as seen in Figure 4, show a shoe sole comprising a resilient insert (400) having cushioning chambers (402, 404) filled with a fluid for absorbing impact forces and expressly teach the functional equivalence of air and gel as suitable fluids (col. 12, lines 23 through 31). Christensen et al. '499 fail to specifically teach the gel as being a polyurethane polymer gel.

Crosbie '681, as seen in Figures 2 through 3d, shows a seat cushion comprising a top layer (41) including a layer of polyurethane gel (col. 4, lines 42 through 50; col. 8, lines 27 through 33). Crosbie '681 is silent with regard to the chemical make-up of the polyurethane gel.

With regard to claim 1, it would have been obvious to one having ordinary skill in the art of cushions at the time the invention was made to modify the device shown by Matsler et al. '352 with the substitution of polyurethane gel for the air in the lower supporting layer as taught by Christensen et al. '499 and Crosbie '681 to be art recognized equivalents.

With regard to claim 7, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, the claimed limitation of a film being produced together with the gel layer and pulled off has not been given patentable weight.

Art Unit: 3671

With regard to claim 11, it would have been obvious to one having ordinary skill in the art of synthetic resins at the time the invention was made to make the polyurethane gel disclosed by the combination of Matsler et al. '352, Christensen et al. '499 and Crosbie '681 of the long chain type having few linkages without added plasticizers. The motivation would have been to produce a gel substance with high flexibility at room temperature (very low hardness) for comfort.

With regard to claim 12, it would have been obvious to one having ordinary skill in the art of synthetic resins at the time the invention was made to make the polyurethane gel disclosed by the combination of Matsler et al. '352, Christensen et al. '499 and Crosbie '681 of the under-cross-linked type based on polyols and polyisocyanates or polyethers and polyisocyanates. The motivation would have been to produce a soft to tacky gel substance with high flexibility at room temperature (very low hardness).

8. Claims 4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsler et al. (U.S. Patent No. 5,845,352 A) in view of Christensen et al. (U.S. Patent No. 6,745,499 B2) and Crosbie (U.S. Patent No. 6,336,681 B1) as applied to claim 1 above, and further in view of Purdy et al. (U.S. Patent No. 5,680,662 A).

Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 disclose all of the features of the claimed invention with the exception(s) of:  
with regard to claim 4,

the expansion channels being partially filled with integral projections protruding from said lower side of the polyurethane foam layer that enter into the expansion channels of the supporting gel layer;

with regard to claim 9,

the integral projections extending as far as a bottom of the expansion channels; and  
with regard to claim 10,

the projections being supported on the bottom of the expansion channels.

Purdy et al. '662, as seen in Figure 4, show a mattress (10) comprising a series of alternating gel-filled lower tunnels (32) and upper loops (34) to prevent "bottoming out" (col. 1, lines 34 through 44) and to better normalize and distribute the weight of the patient's body and to substantially reduce the tangential forces bearing on the skin of the user (col. 3, lines 60 through 67), wherein the integral projections of the upper layer extend as far as the bottom of the expansion channels formed between the tunnels of the lower layer, and wherein the projections of the upper layer are supported on the bottom of the expansion channels.

With regard to claims 4, 9 and 10, it would have been obvious to one having ordinary skill in the art of cushions at the time of invention to modify the device shown by the combination of Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 such that the polyurethane foam would have integral projections on its lower side to enter the expansion channels of the lower supporting layer as taught by Purdy et al. '662. The motivation would have been to better normalize and distribute the weight of a user throughout the device.



9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsler et al. (U.S. Patent No. 5,845,352 A) in view of Christensen et al. (U.S. Patent No. 6,745,499 B2) and Crosbie (U.S. Patent No. 6,336,681 B1) as applied to claim 1 above, and further in view of Himmelsbach et al. (U.S. Patent No. 6,630,227 B1).

Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 disclose all of the features of the claimed invention with the exception(s) of:

with regard to claim 5,

the upper covering being a spacer knit consisting of two textile surfaces connected to each other spacer threads.

Himmelsbach et al. '227 disclose a shaped article and expressly teach the advantageous use of spacer knit fabrics as having high long-term resilience because of the rigid connecting spacer threads (col. 2, lines 59 through 63).

With regard to claim 5, it would have been obvious to one having ordinary skill in the art of cushions at the time the invention was made to modify the device shown by the combination of Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 by substituting spacer knit consisting of two textile surfaces for the first and second layers (14, 15) of the upper covering (13) as taught to be advantageous by Himmelsbach et al. '227. The motivation would have been to impart long-term resilience to the upper covering.

10. Claims 13 through 17, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsler et al. (U.S. Patent No. 5,845,352 A) in view of Christensen et al. (U.S. Patent No. 6,745,499 B2) and Crosbie (U.S. Patent No. 6,336,681 B1) as applied to claim 12 above, and further in view of Burgdörfer et al. (4,456,642).

Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 disclose all of the features of the claimed invention with the exception(s) of:

with regard to claims 13, 29 and 30,

the gel compounds being produced from materials having an isocyanate functionality of the polyol component of at least 7.5;

with regard to claim 14,

the polyol component for producing the gel consisting of a mixture of (a) one or more polyols having hydroxyl numbers under 112, and (b) one or more polyols having hydroxyl numbers in the range from 112 to 600, the weight ratio of component (a) to component (b) being between 90:10 and 10:90, the characteristic isocyanate number of the reaction mixture lying in the range of from 15 to 60, and the product from the isocyanate functionality and functionality of the polyol component being at least 6.

with regard to claim 15,

the polyol component for producing the gel consisting of one or more polyols having a molecular weight of between 1000 and 12,000 and an OH number of between 20 and 112, the product of the functionalities of the polyurethane-forming components being at least 5 and the characteristic isocyanate number being between 15 and 60;

Art Unit: 3671

with regard to claim 16,

the isocyanides used for the production of the gels being those of the formula  $Q(NCO)$  in which N is 2 to 4 and Q is an aliphatic hydrocarbon radical having 8 to 18 C atoms, a cycloaliphatic hydrocarbon radical having 4 to 15 C atoms, an aromatic hydrocarbon radical having 6 to 15 C atoms or an araliphatic hydrocarbon radical having 8 to 15 C atoms; and with regard to claim 17,

the polyurethane being produced with isocyanates in a pure form or with urethanized, allophanized, biurethized or functionally correspondingly modified isocyanates.

Burgdörfer et al. '642 disclose gel compositions for use in cushions (col. 1, lines 6 through 10; col. 2, lines 11 through 29).

With regard to claim 13, see col. 3, lines 55 through 59.

With regard to claim 14, see col. 2, line 63 through col. 3, line 39.

With regard to claim 15, see col. 2, line 63 through col. 3, line 39.

With regard to claim 16, see col. 7, lines 19 through 33.

With regard to claim 17, col. 11, lines 36 through 44.

With regard to claims 13 through 17, it would have been obvious to one having ordinary skill in the art of synthetic resins at the time the invention was made to make the polyurethane gel composition of the device shown by the combination of Matsler et al. '352 in view of Christensen et al. '499 and Crosbie '681 as taught by Burgdörfer et al. '642. The motivation would have been to produce a gel having long-term stability with variable mechanical properties.

***Allowable Subject Matter***

11. Claims 8 and 18 through 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

***Response to Arguments***

13. Applicant's arguments filed 12 January 2005 have been fully considered but they are not persuasive.

In response to Applicant's statements that Matsler et al. '352 fail to teach a lower supporting layer with integral supports, the Examiner contends that the supports meet the definition of "integral" per the Merriam-Webster Online Dictionary in the sense that they are essential to the completeness of the supporting layer. Furthermore, the supports are integral, or unitary, with one another.

In response to Applicant's statement that Christensen et al. '499 teach the functional equivalence of air and a "fluid" gel unable to retain its shape in a flow process under pressure, the Examiner notes the express teaching of a "resilient" insert in column 12. Moreover, Crosbie '681 teaches the known use of viscoelastic gel in column 4 at lines 40 through 50.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a gel capable of retaining its original shape after exposure and removal) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 3671


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Mayo whose telephone number is 703-305-3019. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 703-308-3870. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



FLM  
07 April 2005



ROBERT E. PEZZUTO  
PRIMARY EXAMINER